

**IN THE CLAIMS:**

The following is a complete listing of claims in this application.

1. (currently amended) A method for determining the color effect of ~~dispersive materials such as materials or biological substances of a multilayer system, in particular~~ a series of layers in teeth or dental materials, wherein the remission of the multilayer system is calculated by means of forward Monte Carlo simulation of intrinsic optical parameters dispersion coefficient  $\mu_s$ , anisotropy factor  $g$  and absorption coefficient of the different materials, calculated by inverse Monte Carlo simulation, taking into consideration refractive index  $n$ , thickness  $d$  of the respective layer of the materials as well as dispersion phase function of the individual materials and the color effect determined from the remission, characterized in that the intrinsic parameters dispersion coefficient  $\mu_s$ , anisotropy factor  $g$  and absorption coefficient of each of the materials are first calculated on the basis of a layer thickness of material enabling transmission of light and that a corrected absorption coefficient  $\mu_{ak}$  is then calculated by inverse Monte Carlo simulation on the basis of the remission of the respective material of an optically dense layer having a thickness  $d_D$ , the corrected absorption coefficient  $\mu_{ak}$  as the absorption coefficient forming the basis for calculating the remission and the color effect of the multilayer system;

wherein the intrinsic optical parameters are determined on the basis of spectrometric measurements.

Claim 2 (canceled).

3. (original) The method according to claim 1, characterized in that the intrinsic optical parameters are taken from a data bank.

4. (previously presented) The method according to claim 1, characterized in that the intrinsic optical parameters dispersion coefficient  $\mu_s$ , uncorrected absorption coefficient  $\mu_a$  and anisotropy factor  $g$  of a material are calculated on the basis of macroscopic optical parameters of the material in the form of diffuse remission  $R_d$  as well as diffuse transmission  $T_d$  and/or total transmission  $T_t$  and/or collimated transmission  $T_c$ , taking into consideration the dispersion phase function of the material, thickness  $d$  of a layer of the material used during determination of the macroscopic parameters and refractive index  $n$  of the material by means of inverse Monte Carlo simulation.

5. (previously presented) The method according to claim 1, characterized in that the remission of the layer system is calculated for the series of layers consisting of different materials on the basis of the corrected absorption coefficient  $\mu_{ak}$ , the dispersion coefficient  $\mu_s$  and the anisotropy factor  $g$  of each material, taking into consideration at least the dispersion phase function, the refractive index  $n$  and thickness  $d$  of each layer and series of layers by means of forward Monte Carlo simulation.

6. (previously presented) The method according to claim 1, characterized in that, when calculating the intrinsic optical parameters by means of the inverse Monte Carlo simulation, measurement parameters and/or measurement geometries from the

experimental determination of the macroscopic optical parameters are taken into consideration.

7. (original) The method according to claim 1, characterized in that the calculation of the color effect from the remission takes place by means of algorithms or multifactor analysis.

8. (original) The method according to claim 1, characterized in that the color effect is calculated taking the geometric extension such as curvature of the layer system into consideration.

9. (original) The method according to claim 6, characterized in that, when using an Ulbricht sphere-type spectrometer as measurement geometry, test geometry, diaphragm diameter, sphere parameter, beam divergence or diameter of a light spot are used as a basis.